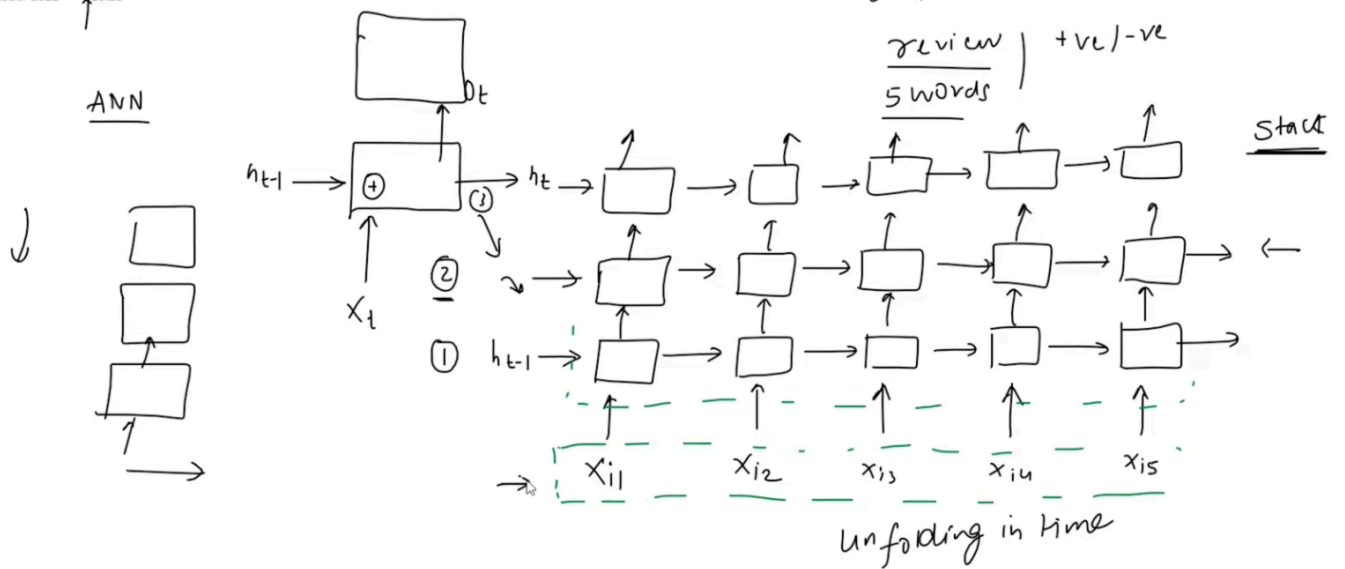


# Deep RNN

What is Deep RNN →  
17 October 2023 16:28

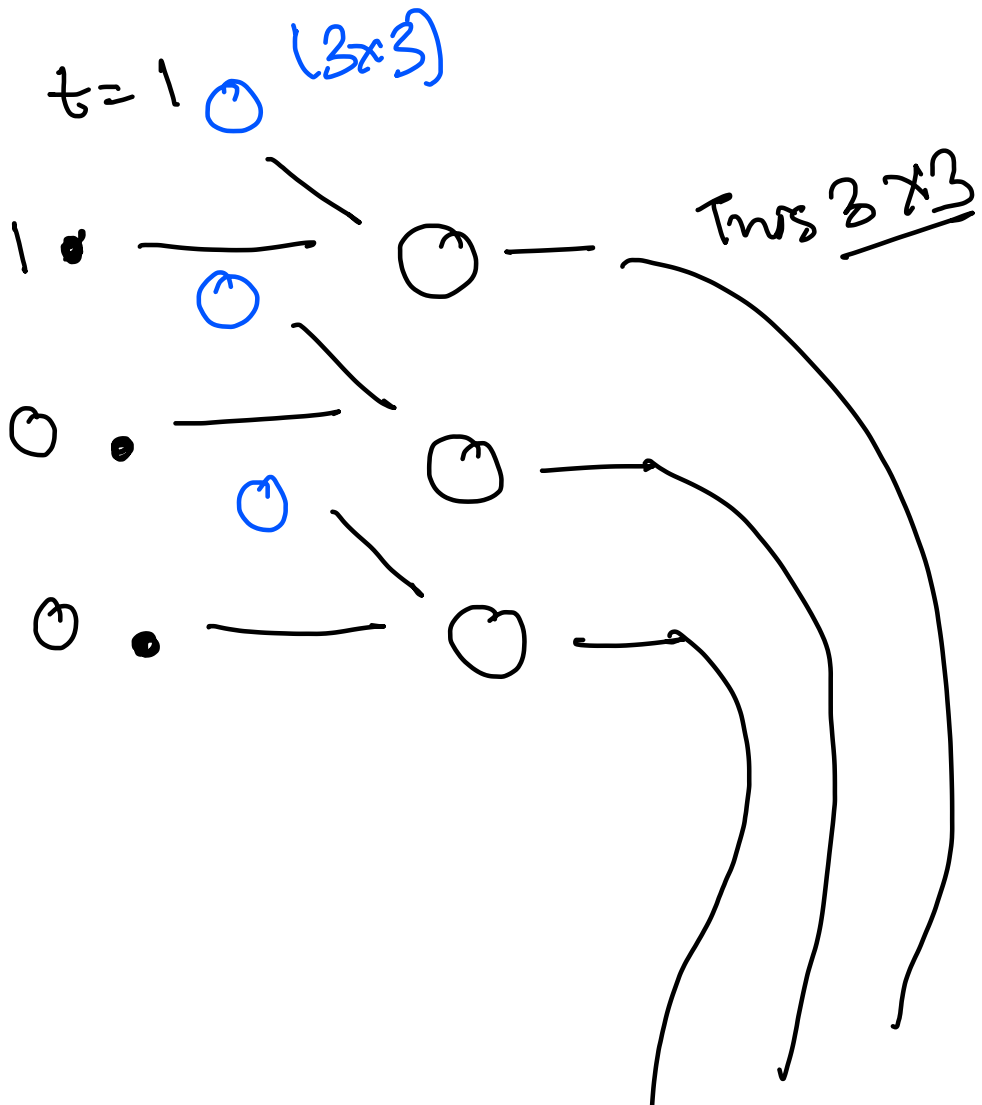
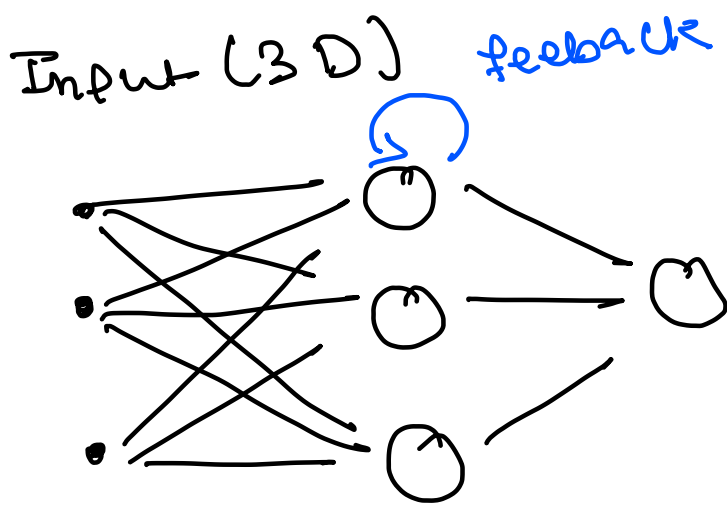
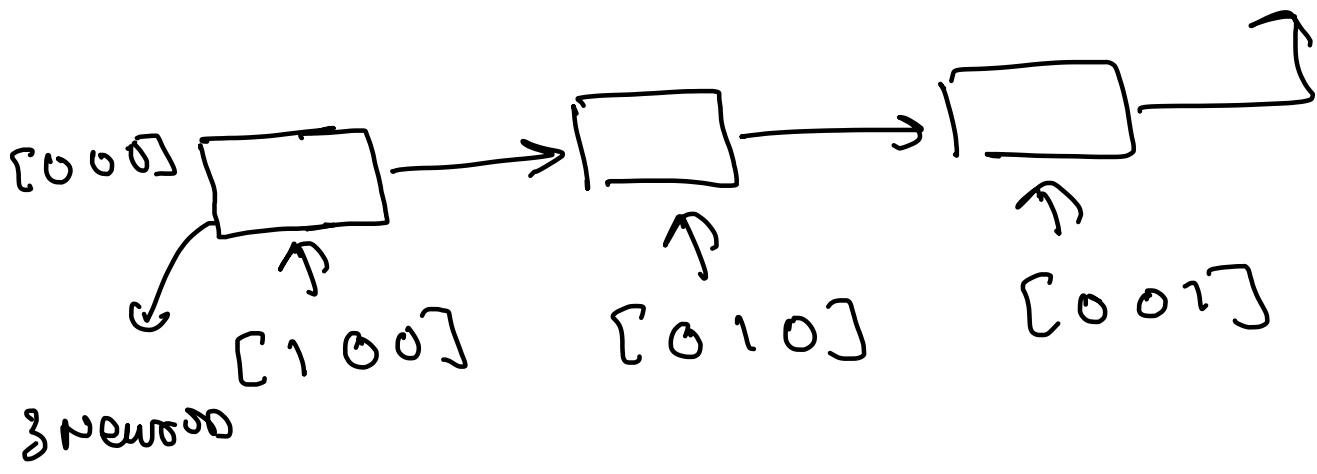


review  
cat mat rat  
rat rat mat  
mat cat cat

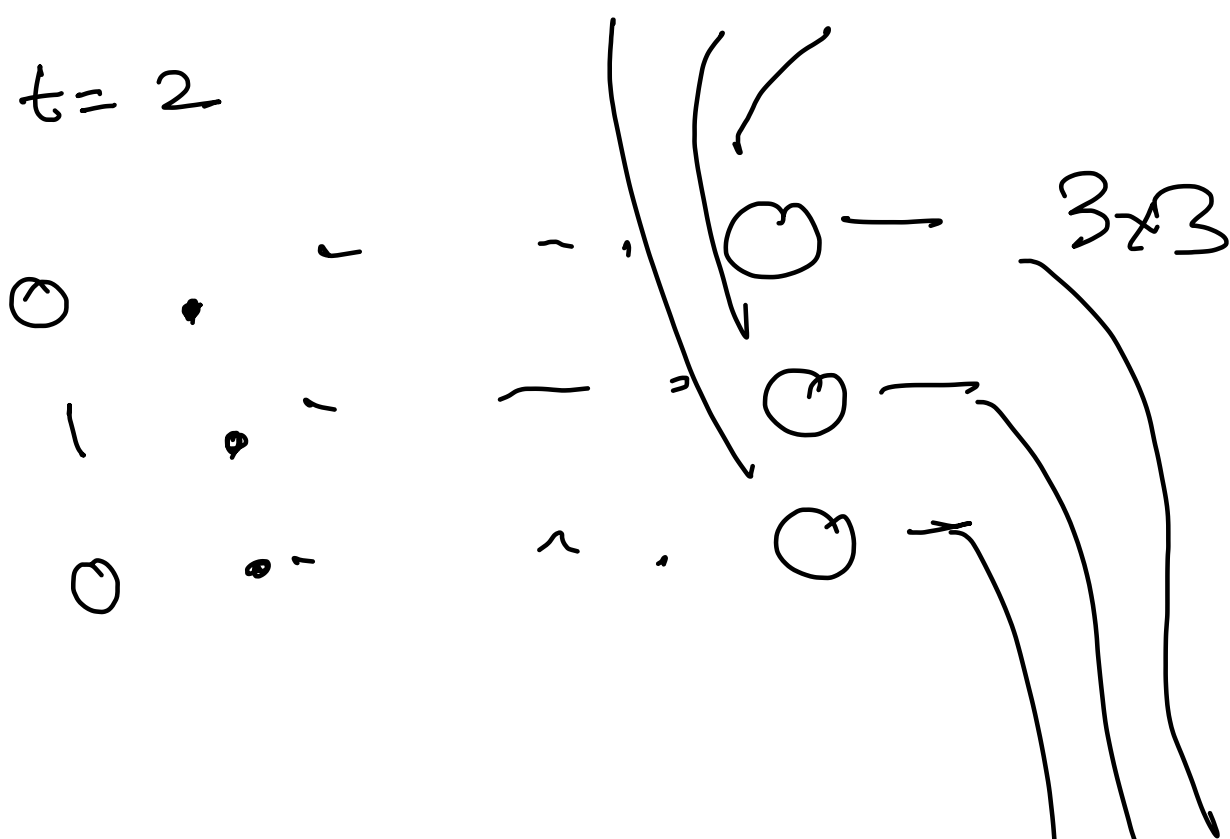
Sentiment

1  
0  
1

$[1\ 0\ 0]$   $[0\ 1\ 0]$   $[0\ 0\ 1]$



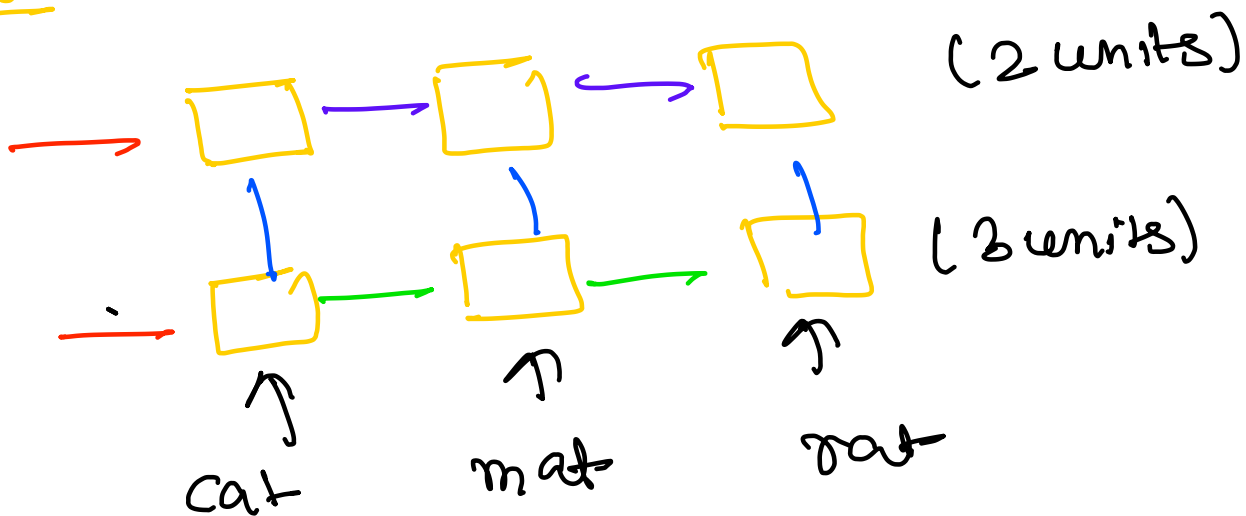
$t = 2$



$t = 3$



$\therefore$  NUL



$t=1$  ~~3x3~~

3x3

2x2

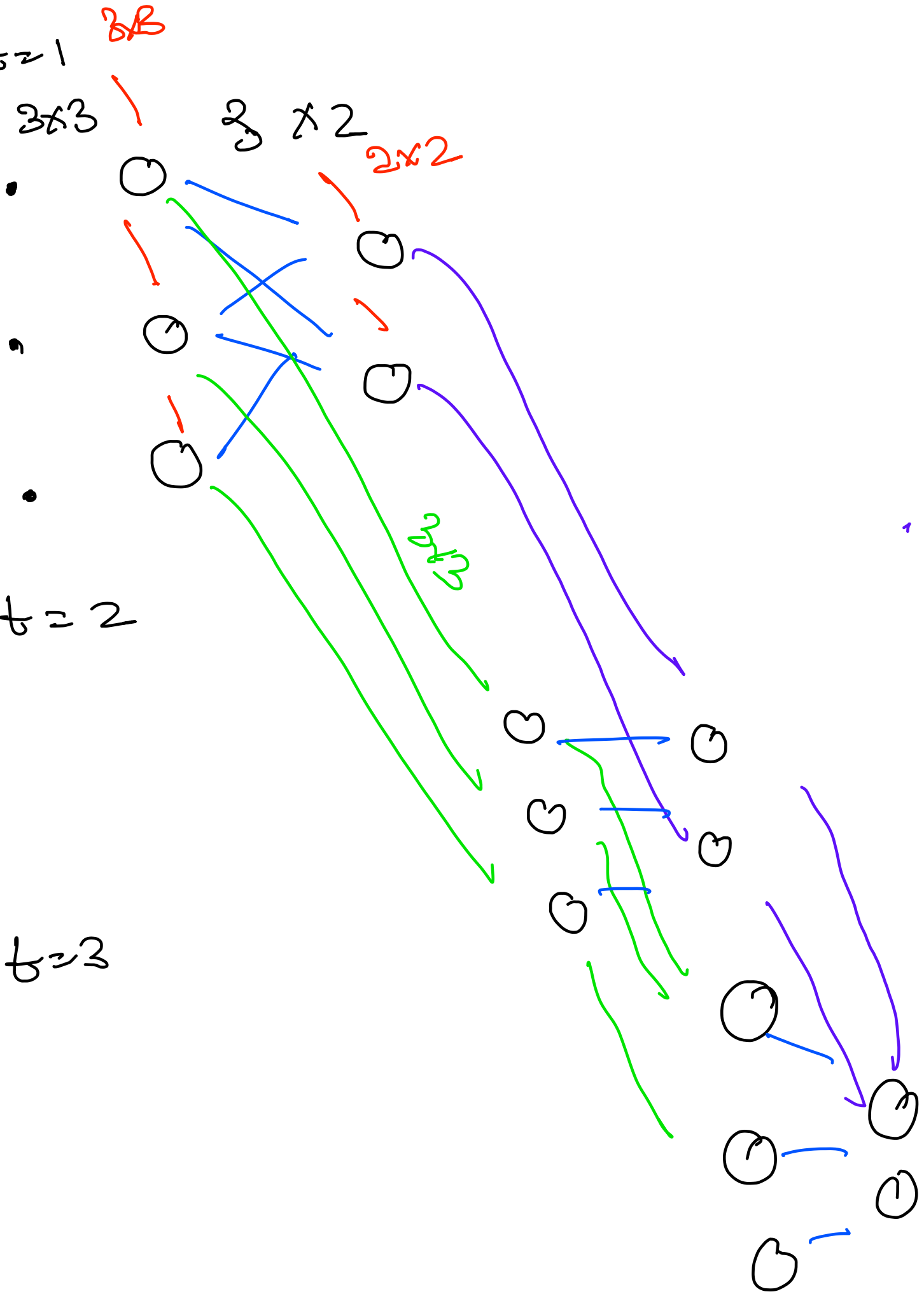
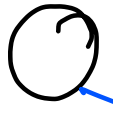
~~2x2~~



$t=2$

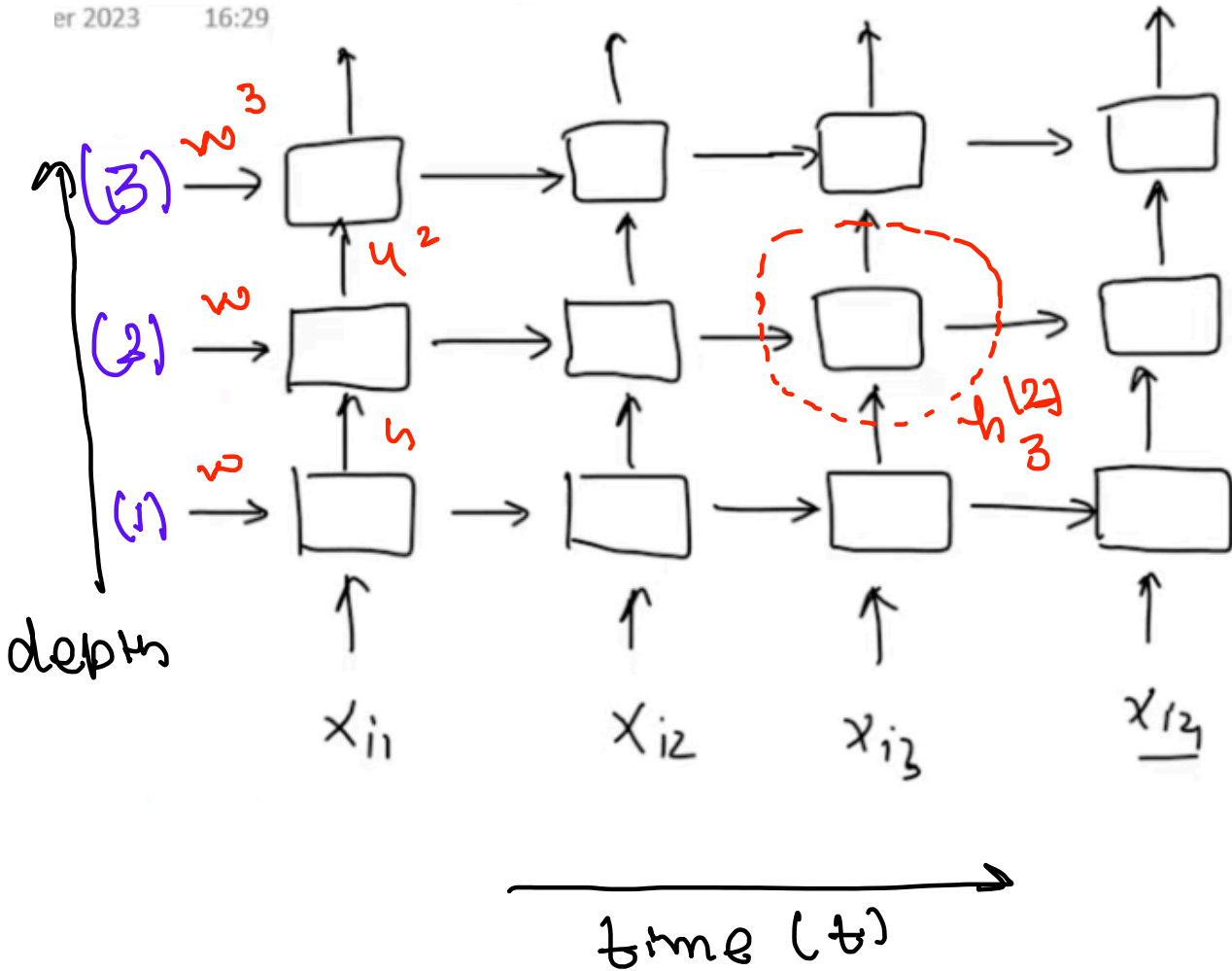


$t=3$



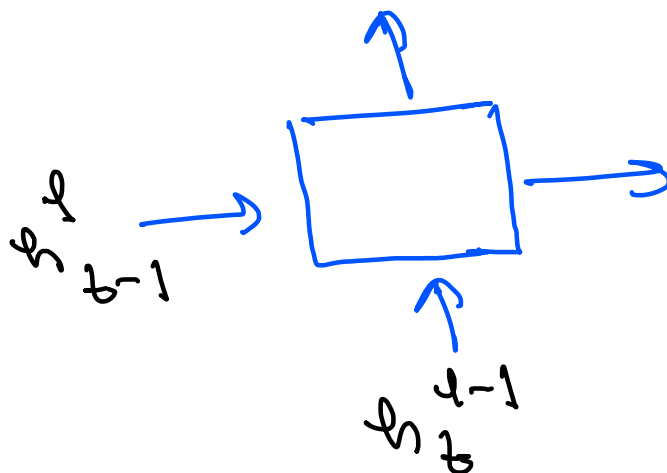
# Notation

## 2 Dimensional grid



(1) → layer.

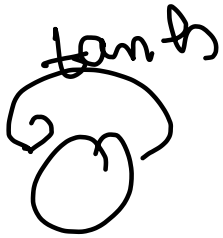
$h_t$   
↓  
Time



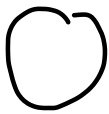
$$h_z^{(l)} = \tanh(h^{(l)}_{z-1} + w^l_{z-1} h^{(l-1)}_z + b)$$

Inc ode  
architecture

32 dimes



Sigmoid

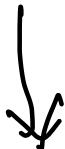


$w =$

$32 \times 5$



$8 \times 1$



$5 \times 5$



$5 \times 5$

$5 \times 5$

5

5

bias

embedded

$$10000 \times 32 = 32000$$

Simple RNN

$$\begin{array}{l} 1 \\ 2 \\ 3 \end{array} \quad \begin{array}{l} 32 \times 5 \\ 185 \\ \hline 5 \end{array} \quad \begin{array}{l} + 8 \times 5 \\ + \text{bias} \end{array}$$

RNN 2

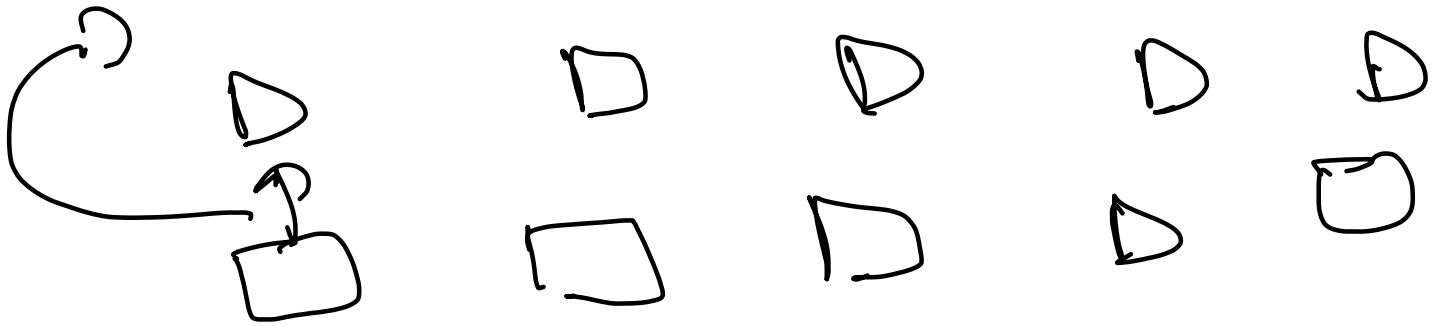
$$\begin{array}{l} 1 \\ 2 \end{array} \quad \begin{array}{l} 8 \times 5 \\ 50 \\ \downarrow \\ 5 \end{array} \quad \begin{array}{l} + 5 \times 5 \\ + 5 \\ \downarrow \\ \text{bias} \end{array}$$

Dense

$$\begin{array}{l} 5 \\ \downarrow \\ 5 \end{array} \quad \begin{array}{l} + 1 \\ \downarrow \\ \text{bias} \end{array}$$

Return Sequence & Tool.

Information when flow return sequence is told.



Variants

This deep is not only of Deep RNN

